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Southwestern MEDICINE

Official Journal of The Southwestern Medical Association, The Western Association of Railway Surgeons, The Texas Orthopaedic Association, The Southwest Obstetrical and Gynecological Society, The Southwestern Dermatological Society, Texas District One Medical Association, The Southwestern New Mexico Medical Society, and El Paso County Medical Society

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DISTRICT ONE, TEXAS MEDICAL ASSOCIATION
ANNUAL MEETING, PECOS, FEB. 3

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1. Stephens, V. C., *et al.:* J. Am. Pharm. A. (Scient. Ed.), *48*:620, 1959.
2. Salitsky, S., *et al.:* Antibiotics Annual, p. 893, 1959-1960.
3. Reichelderfer, T. E., *et al.:* Antibiotics Annual, p. 899, 1959-1960.
4. Kuder, H. V.: Clin. Pharmacol. & Therap., in press.

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TMA President to Speak at District One Meeting in Pecos

The annual meeting of District One of the Texas Medical Association will be held February 3, 1961, in Pecos, Texas, at the Pecos Country Club.

Principal speaker will be Dr. May Owen, Fort Worth, president of the Texas Medical Association, who will talk at a luncheon meeting. She will be introduced by Dr. Charles E. Oswalt, Fort Stockton, counselor District One. The American Academy of General Practice will give credit for the meeting. Reservations may be made by writing Mrs. Harold Lindley, 410 S. Hickory in Pecos.

The complete program for the meeting is as follows:

8:30- 9:15 Registration at Pecos Country Club.

9:15- 9:45 Dr. David Cameron, El Paso, "Whiplash Injuries."

9:45-10:15 Dr. Edward Egbert, El Paso, "Respiratory Treatment of Allergy".

10:15-10:30 Coffee Break.

10:30-11:30 Dr. William Wade and Dr. Nathan Kleban, El Paso, "Panel Discussion on Diagnosis and Treatment of Hypertension of Renal Arterial Basis".

11:30-12:00 Dr. John Wilkinson, El Paso, "Steroid Treatment in Skin Diseases".

12:00- 2:00 Luncheon at Pecos Country Club. Dr. May Owen, speaker. Business meeting — Dr. Russell Holt, president, District One.

2:00- 2:30 Dr. Jack Postlewaite, El Paso, "Immunity to Virus Infections".

2:30- 3:00 Dr. Don Rathbun, El Paso, "Intensive Treatment of Epilepsy".

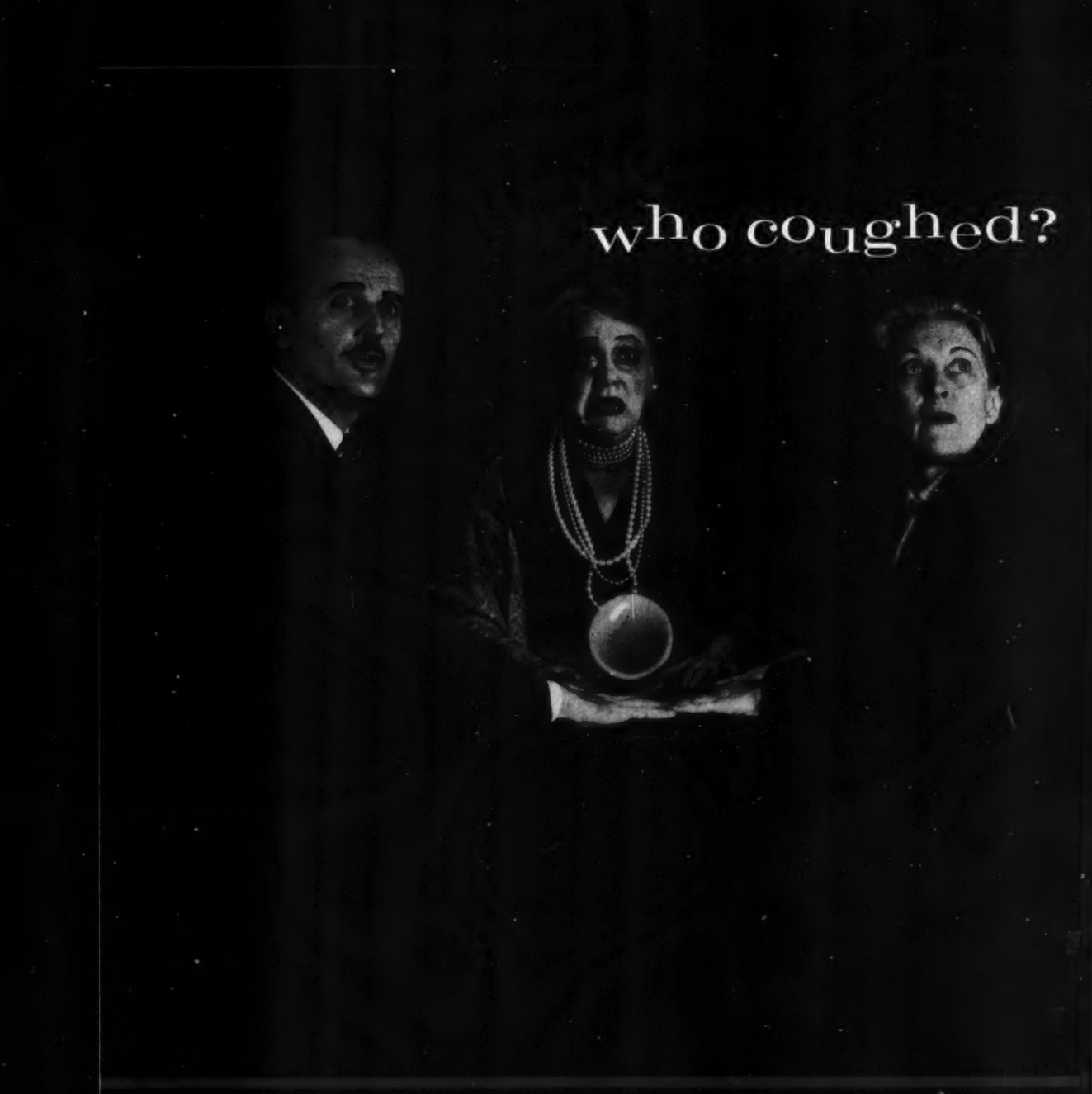
3:00- 3:15 Coffee Break.

3:15- 3:45 Dr. Maynard Hart, El Paso, "Practical Uses of Radioactive Isotopes in Certain Diagnostic Procedures".

3:45- 4:15 Dr. Charles Campbell, Kermit, "Congenital Spherocytic Anemia and Related Anemias".

6:00 P.M. Cocktails followed by dinner, Pecos Country Club. Ladies invited.

Officers are Dr. Russell Holt, El Paso, president; Dr. Harold Lindley, Pecos, vice-president; Dr. Gordon L. Black, El Paso, secretary-treasurer; and Mrs. Louis W. Breck, El Paso, council woman for the District One Auxiliary.



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SOUTHWESTERN MEDICINE

VOL. XLII, NO. 1 JANUARY, 1961

MEETINGS

Dr. John F. Wanless New President of Southwest OB-GYN Society

Dr. John F. Wanless of San Diego, California, was elected president of the Southwest Obstetrical and Gynecological Society at its tenth annual meeting in Las Vegas, Nevada, November 6-8, 1960. Retiring president was Dr. Charles Newcomb of Tucson.

Other new officers are Dr. Zeph B. Campbell, Phoenix, president-elect; Dr. Raymond J. Jennett, Phoenix, vice-president; Dr. Charles T. Franklin, La Mesa, Calif., secretary; and Dr. Francis L. Rook, San Diego, treasurer.

The 1961 meeting will be held at the Konakai Club in San Diego, October 15-17.

Guest speakers at the meeting were Dr. R. Gordon Douglas, professor of obstetrics and gynecology at Cornell Medical School; Dr. J. P. Greenhill, professor of gynecology at Cook County Graduate School of Medicine in Chicago; Dr. Earl M. Marsh, assistant clinical professor in gynecology and obstetrics at the University of California Medical School at San Francisco; Dr. John L. Parks, professor of obstetrics and gynecology at The George Washington University School of Medicine; and Dr. Ralph A. Reis, professor of obstetrics and gynecology at Northwestern University Medical School.

Dr. Wanless

Born in Wisconsin

Born in Richland Center, Wisconsin, Dr. Wanless received his B.S. from the University of Wis-

consin and his M.D. from the University of Wisconsin Medical School. He interned in Christ Hospital in Cincinnati and took a residency in the Cincinnati General Hospital in Obstetrics and Gynecology. During the war he served with the medical corps of the U. S. Navy and emerged with the rank of lieutenant commander.

He began the practice of medicine at the Rees-Stealy Medical Clinic in San Diego in 1946 and he became a partner in the clinic in 1951. He is certified by the American Board of Obstetrics and Gynecology.

He is a member of the board of directors of the California Physicians Service, past president of the board of directors of the San Diego Blood Bank, and a member of the American Congress of Obstetrics and Gynecology and the San Diego Gynecological Society. He was chairman of the department of obstetrics and gynecology at Sharp Memorial Hospital in San Diego in 1959 and is at present a member of the executive medical board of both the Mercy Hospital in San Diego and the Sharp Memorial Hospital.

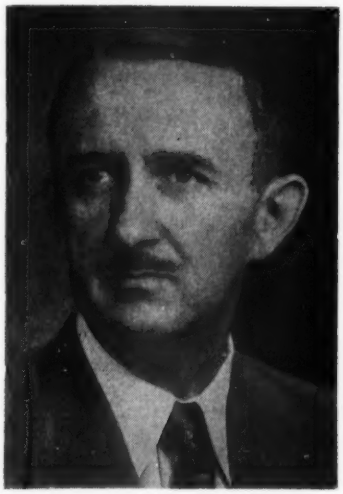
SOUTHWEST OB AND GYN OFFICERS—New officers of the Southwest Obstetrical and Gynecological Society, elected at the 10th annual meeting in Las Vegas, Nevada, November 6-8, are, left to right, front row, Dr. John F. Wanless, San Diego, president; Dr. Francis L. Rook, San Diego, treasurer; and Dr. Raymond J. Jennett, Phoenix, vice-president. Rear row, left, is Dr. Zeph B. Campbell, Phoenix, president-elect, and Dr. Charles T. Franklin, La Mesa, California, secretary.

American Society of Clinical Radiology

The American Society of Clinical Radiology is accepting Charter Membership applications from CLINICIANS (Internists, Cardiologists, Gastro-Enterologists, Chest Physicians, Orthopedists, Rheumatologists, Pediatricians, Otolaryngologists and General Practitioners) who do their own Diagnostic Radiology.

For further information write: Louis Shattuck Baer, M.D., F.A.C.P., 411 Primrose Road, Burlingame, California.

Dr. Louis W. Breck Elected President Of El Paso County Medical Society



Dr. Breck

Dr. Louis W. Breck, a past president of the Southwestern Medical Association, was elected president of the El Paso County Medical Society at its annual meeting Dec. 13, 1960. Other new officers are Dr. Jesson L. Stowe, president-elect; Dr. William R. Gaddis, vice-president; Dr. E. S. Crossett, secretary; Dr. Carlos A. Fernandez, secretary-elect; and Dr. Antonio Dow, treasurer. Dr. Delphin von Briesen was the retiring president.

Born in El Paso, Dr. Breck attended the College of Mines in El Paso and the University of Chicago before entering the Northwestern University Medical School. He received his M.D. in 1933.

He held a rotating internship at Mary's Help Hospital in San Francisco and was assistant resident surgeon at San Quentin Prison, Calif., for the next two years. He then took a fellowship in orthopedic surgery at the Mayo Clinic.

He began the practice of medicine in El Paso in 1937 and has done orthopedic surgery there continuously since that date except for three and one-half years during World War II. He was chief of the orthopedic section in the Regional Hospital at Camp Swift, Tex., for approximately three years and left the service with the rank of lieutenant colonel. He is one of the founding members of the El Paso Orthopedic Surgery Group.

Other Distinctions

Dr. Breck is certified by the American Board of Orthopedic Surgery, a member in the American Academy of Orthopedic Surgeons, a Fellow in the American College of Surgeons, a member of the International College of Surgeons and the International Society of Orthopedics and Traumatology. He is past president of the Texas Orthopedic Association, the New Mexico Orthopedic Association, the Association of Bone and Joint Surgeons and District One of the Texas Medical Association.

He is a former chief of staff of the Thomason General Hospital, Providence Memorial Hospital, Hotel Dieu, all in El Paso, and at present is chairman of the Orthopedic Residency Training program of Hotel Dieu. He is orthopedic consultant to William Beaumont General Hospital, the Veterans Administration and the U. S. Employees' Compensation Commission. He is an approved orthopedic surgeon for the Texas Crippled Children's Division. He is consulting orthopedic surgeon at the Lea County General Hospital at Hobbs, the Memorial Hospital in Alamogordo and the Memorial Hospital in Las Cruces.

He is a member of the Masonic Order, the Scottish Rite, the Shrine, Sigma Alpha Epsilon Fraternity, Phi Beta Pi Medical Fraternity, the Manhattan Presbyterian Church, and the Downtown Kiwanis Club.

He and his wife, the former Julia S. North, have two sons and two daughters and reside at 2726 Richmond Avenue.

Dr. Louis E. Jones Heads Western Railway Surgeons

Dr. Jones

Dr. Louis E. Jones of Roseville, Calif., was elected president of the Western Association of Railway Surgeons at its 57th annual meeting in Houston, Texas, October 27-29, 1960.

The retiring president was Dr. Joe R. Gandy of Houston.

Other new officers are Dr. Hugh S. Collett, Elko, Nev., first vice-president; Dr. J. F. Prinzing, Denver, second vice-president; Dr. Graham Owens, Kansas City, secretary; Dr. Harry O. Hund, San Rafael, Calif., treasurer; and Dr. Gandy, chairman of the executive committee.

A native of California, Dr. Jones was graduated from Stanford University in 1924 and received his M.D. from St. Louis University Medical School. He interned at St. Mary's Hospital in St. Louis, Mo., and in the Sacramento County Hospital in California.

Dr. Jones entered general practice in Roseville, Calif., in 1929 and has been thus engaged continuously from that date. He became associated with the Southern Pacific Company that year as district surgeon.

In 1949 he was appointed to the California State Board of Medical Examiners and has continued in that capacity to the present. He is now secretary of the board, a position he has held since 1953. He is also president-elect of the Federation of State Board of Medical Examiners.

On Staff of Mercy and Sutter Hospitals

Dr. Jones in on the staff of the Mercy and Sutter Hospitals in Sacramento and the staff of the Roseville District Hospital, where he has been chief of staff since its establishment in 1952.

Dr. and Mrs. Jones have a son Louis, Jr., who took his master's degree in biological science in Stanford University and who is now on the teaching staff in the science department of a Sacramento high school; and a daughter, Martha, who is at Stanford University studying for her master's degree in French.

Subjects discussed at the Houston meeting were Current Occupational Hazards in the Transportation Industry; Drug Costs and Health Progress; An Appraisal of Pre-Employment Back X-Rays; Relationship Between Railway Surgeons and the Railroad Retirement Board; Idiopathic Hypoparathyroidism: Case Report with Autopsy Findings; The Prevention and Treatment of Certain Disabling Skin Diseases; The Internist as a Surgeon's Consultant; Management Teamwork; The Comprehensive Surgical Management of Mitral Valvular Disease; Common Pulmonary Mycoses; Urological Injuries and Their Management; Chronic Arterial Insufficiency in the Lower Extremities; Stigmata of Diabetes—Clues in Early Diagnosis; Returning the Patient with Myocardial Infarction to Railroad Employment; and Rheumatoid Arthritis, Osteoarthritis, and Gout.

Members of the committee on local arrangements for the Houston meeting were Dr. and Mrs. F. R. Denman, Dr. and Mrs. C. M. Crigler, Dr. and Mrs. S. A. Levy, and Dr. and Mrs. F. K. Dornak.

Symposium on Aged, Speakers Featured at TMA Symposium

An impressive slate of guest speakers, plus an informative symposium on medical care programs for the aged and indigent, will highlight the 1961 Conference for County Medical Society Officials. The one-day program, given annually by the Texas Medical Association, will be held on Saturday, Jan. 28, at the TMA headquarters in Austin. The meeting is expected to attract 400 to 500 physicians and guests.

The guest speakers will include Dr. F. J. L. Blasingame of Chicago, Executive Vice-President of the American Medical Association; Frank S. Groner of Memphis, President, American Hospital Association; Honorable Joe M. Kilgore of Washington, United States Congressman representing the 15th District of Texas; Ed Gossett of Dallas, General Attorney for Texas of the Southwestern Bell Telephone Company; and W. P. Strube, Jr., of Houston, President of the Mid-American Life Insurance Company.

The special afternoon symposium will cover all aspects of medical care programs for the aged and indigent, including an outline of the present old age assistance program in Texas, provisions of the new federal-state medical care program for the aged, and consideration of current legislative proposals to be set before the Texas Legislature and Congress in 1961.

Symposium Participants

Participating in the symposium will be John H. Winters of Austin, Commissioner, State Department of Public Welfare; State Senator Crawford C. Martin of Hillsboro; Dr. M. O. Rouse of Dallas, Vice-Speaker of the American Medical Association's House of Delegates and a Past-President of TMA: and Dr. E. K. Blewett of Austin, Chairman of TMA's Committee on Hospital Care of the Rural Medically Indigent. The symposium will be moderated by Dr. Russell L. Deter of El Paso, Vice-President of TMA.

For the first time this year, a session dealing directly with problems of county society officials is scheduled. Subjects to be covered include topics which draw good attendance at society meetings, sources of programs, how to increase meeting attendance, committees which every society should establish, and activities which should be stressed during the coming year.

Provisional members of the Association will also have an opportunity to attend an Orientation Program on the same date. The program will be given in conjunction with the Conference, and Orientees will be able to hear all of the five guest speakers.

Other activities scheduled during the January 28th week-end will be the meeting of most American committees, councils, and boards, as well as the Executive Board meeting on Sunday morning.

Luncheon will be served in the headquarters building at noon on Saturday, and the Texas Employers Insurance Association will be host for a Hospitality Hour at the Driskill Hotel on Saturday evening.

ORIGINAL ARTICLES

Infantile Eczema in General Practice*

FREDERIC SPEER, M.D., *Kansas City, Kansas*

Few physicians would nominate infantile eczema as their favorite disease. It is notoriously stubborn, capricious, and unpredictable. But there is much about eczema that is benign, and the doctor who makes a patient study of each case often finds it surprisingly responsive to treatment.

As is true of so many diseases, effective treatment depends chiefly on a clear understanding of causes. Although eczema is essentially an allergic state, treatment must extend to a consideration of such factors as contact dermatitis, chapping, infection, and seborrhea. This paper will begin with a consideration of these basic factors.

ETIOLOGY

Allergy

Foods. Foods are the dominant allergens in eczema. Although any food be at fault, successful detection and elimination depend on a knowledge of their relative importance. In the following list, foods commonly fed to infants are listed in order of incidence.[5]

Very common: Milk, egg, orange.

Common: Corn, wheat, rice, oats, barley, tomato, apple, pear.

Fairly common: Bean, pea, beef, peach, plum, apricot.

Uncommon: Pork, banana, potato, carrot.

Unusual: Chicken, lamb, cauliflower, broccoli, turnip, sweet potato, beet, squash, cranberry, blueberry, asparagus, vitamin drops.

Inhalants. Inhalant allergens are of importance in later childhood, but are not common in the first year or two of life. In stubborn cases, however, molds, pollens, and house dust are to be considered. Occasionally infants with extreme egg sensitivity will flare from the odor of egg. On rare occasions this occurs with other foods.

Pathology. Histologic study of eczema makes it clear that there is a profound disturbance of both the epidermis and corium.[3] In Figure 1 the normal epidermis and upper corium are shown diagramatically. In Figure 2 the disorganization produced in the allergic reaction is shown. Injury to the epidermis leads to the formation of vesicles. Injury to the small vessels of the corium leads to increased vascular permeability and outflow of edema fluid of high protein content. As fluid pushes up into the epidermis, vesiculation becomes severe, and vesicles rising to the surface rupture through the horny layer and destroy its continuity. The result is a swollen, vesicular, erythematous, itching, weeping, crusted skin. For some reason the sites of predilection of this process are the face, forearms, and legs, but in severe cases almost the entire integument in involved.

Seborrhea

The term seborrhea implies increased activity of the sebaceous glands, but enlargement of these structures has not been consistently reported. In the absence of a settled concept of pathogenesis, the writer is inclined to think that seborrhea probably represents a state in which aging epidermal cells, instead of elaborating keratin, turn to the formation of lipids and the production of a soft, greasy epidermal surface. The **horny** layer becomes the **fatty** layer, which breaks into greasy scales and falls away, leaving the sensitive lower epidermis exposed.

Glaser[1] has summarized the points which aid

*Presented before the annual meeting of the Southwestern Medical Association, November 7, 1959.

From the pediatric allergy clinics of the University of Kansas Medical Center and Children's Mercy Hospital, Kansas City.

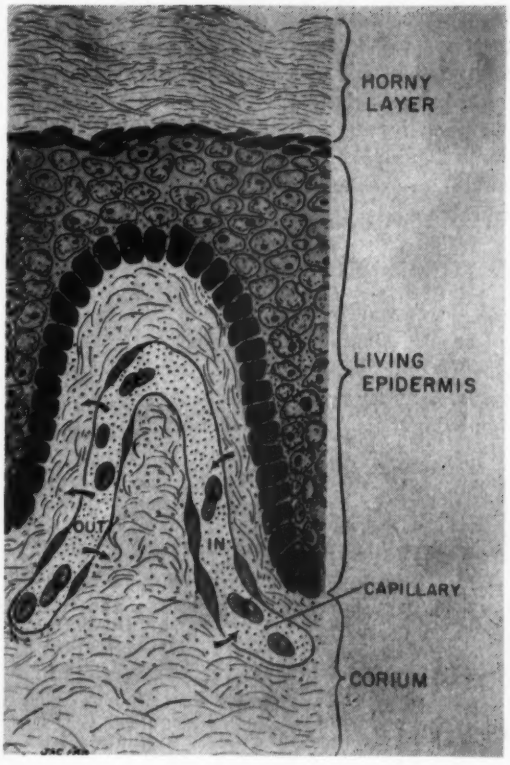


Figure 1

NORMAL SKIN, DIAGRAMATIC. *Small vessels of the corium are intact. Tissue fluid flows from arteriolar end of capillary and is reabsorbed into venular end, bathing living epidermis. Horny layer of epidermis is intact. In eczema, sensitized epidermal cells are injured on contact with allergen carried in tissue fluid.*

in the recognition of seborrhea. The following seven are abstracted from his summary.

1. Seborrhea of the scalp (cradle cap) is usually present.

2. Waxy plaques may be seen on involved areas of the body.

3. Lesions tend to be salmon or yellowish brown rather than red.

4. Antecubital and popliteal lesions tend to be intense at the periphery and relatively clear at the creases. Margins of lesions are usually sharp.

5. When stretched, the skin appears yellowish and "brittle."

6. In contrast to eczema, there is very little itching.

7. Vesiculation is absent.

Chapping (Dehydration)

Even in health the horny layer of the skin may be intolerant of low atmospheric humidity. The infant's face is especially vulnerable to chapping since it is constantly exposed to wetting (saliva, milk, drink, food, washing) and drying (towels, bedding, evaporation, low humidity). There can be little question that it is because of chapping that eczema characteristically flares in cold weather. It may also be said with assurance that it is the high humidity of summer, rather

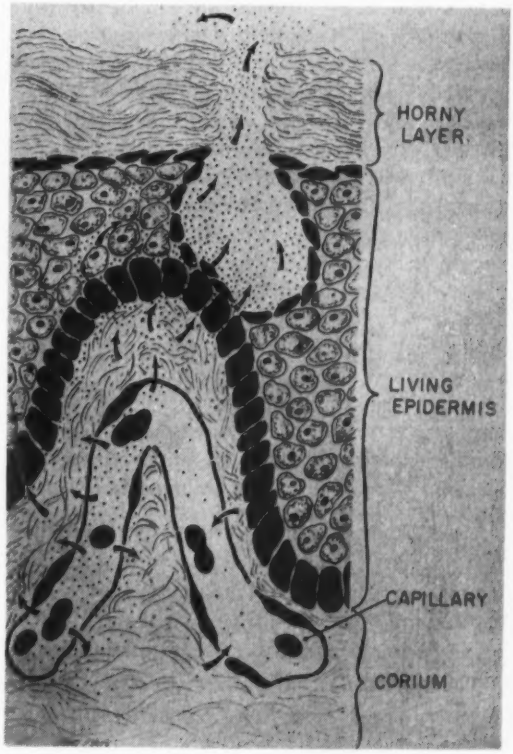


Figure 2

SKIN IN ECZEMA, DIAGRAMATIC. *Injury to epidermal cells from allergic reaction leads to vesicle formation. Injury to small vessel leads to outflow of tissue fluid of high protein content. Edema results and vesiculation is aggravated. Fluid oozes through vesicles with crust formation. Moist, injured skin is subject to external injury and infection.*

than ultraviolet light, that accounts for remission in warm weather.

Contact Dermatitis

Although contact dermatitis is a sensitization phenomenon, it is apparently of an order distinct from the type found in such diseases as eczema, hay fever, and asthma. It is therefore discussed separately.

The skin of infants does not come into contact with the great variety of substances which may disturb the skin of adults, but there are several contactants which are of great importance. Some of these are true sensitizers, while others are physical or chemical irritants. Among the substances most likely to injure the eczematous skin is soap. It may not only act as a sensitizer, but does great damage to the inflamed skin by its macerating and defatting action. Wool may be a sensitizer and is always abrasive. Wool sensitive patients may have trouble from ointments containing lanolin (wool fat). Oils, lotions, creams, shampoos, soaps, and powders contain perfumes which may irritate the skin. Most oils and creams contain hydrocarbons (mineral oil or petroleum jelly) which are solvents of skin fats. Other contactants are: Nylon; vinyl plastic (bibs, diaper covers, high chair upholstering, play pen covers); starch (in clothing and heat powders); fabric dyes; and rubber diaper covers. Drugs which may cause trouble are: steroids; camphor and menthol (chest rubs); mercury, antipruritics, antihistaminics, antibiotics, and sulfonamides.

A well known type of contact dermatitis due to a primary irritant is diaper rash from ammoniacal diapers. In this connection it is well to keep in mind the possibility that drugs used to inhibit ammonia formation may themselves be skin irritants.

Infection

The well known ability of the skin to protect itself from infection is seriously impaired by eczema. Especially to be feared are the viruses of cowpox and herpes simplex. Among bacteria, the common pathogens are staphylococcus and streptococcus, and a sudden flare should always put these two under suspicion.

Candida (Monilia) albicans is the common fungal invader. Moniliasis should be suspected when a beefy-red area of swelling spreads from the anus to the surrounding diaper area.[2] This type of infection may occur in other areas and is easily overlooked. The organism can usually be identified by the use of Pagano-Levin medium, Squib. The child's mother commonly gives a history of severe vaginitis and the father may have crural fungus infection.

PHYSICAL FINDINGS

A head-to-toe inspection of the skin is necessary to proper identification of the various factors which enter into infantile eczema. A search is made not only for the five factors which commonly enter into eczema (allergy, contact dermatitis, seborrhea, chapping, infection) but for other skin disease. Any dermatosis may complicate eczema and others may be confused with it.

Diseases that may resemble eczema are: ringworm, scabies, impetigo, ichthyosis, drug rash, miliaria, papular urticaria, moniliasis, and epidermolysis bullosa.

Body areas which should receive special attention are these:

1. The scalp—for seborrhea, vesiculation, infection.

2. Behind external ears — for intertriginous seborrhea or Candida infection.

3. The cheeks—for vesiculation.

4. The parotid area and external ear—for seborrheic scaling.

5. The nose—for discharge, impetigo of nares, and eosinophils.

6. The diaper area—for (a) Candida infection, (b) ammonia dermatitis, (c) contact dermatitis due to plastic or latex (at margins of diaper area), and (d) erythema from incompletely rinsed diapers. When significant amounts of soap or detergent are left in the diaper, erythema may result. In these cases the skin folds are clear.

TREATMENT

The rule that proper treatment depends on accurate diagnosis applies with particular force in eczema. If the various etiologic factors can be sorted out and dealt with, evidence of healing may be apparent within a few days. But where the skin is severely damaged and the status of the various etiologic factors is obscure, progress may be painfully slow. At times the physician

must uncover one factor at a time and control the disease as best he can. He may well remember the advice of Carlyle, "Do the Duty which liest nearest thee, which thou knowest to be a duty! Thy second Duty will already have become clearer."

Allergy Management

Since allergic sensitization is the central element in eczema, it represents the central problem in treatment. The detection of food allergens depends chiefly on history and elimination tests. Although skin testing should be used where the physician is trained in its use, it is not an absolute essential. All foods with any suspicious history are eliminated from the diet. In the absence of such evidence, those least likely to be allergenic are used. It is important that foods be rotated as much as possible so that the mother may be able to correlate exacerbations with individual foods.

In substituting for milk, either a soy formula or meat (beef) base formula may be used. The soy milk with which the writer has had the most experience is Mullsoy. Except for patients sensitive to beans and peas, it is well tolerated. If beef base formula (Gerber) is not tolerated, the mother makes her own formula, using strained pork, chicken, and lamb in rotation.

Rowe Meat-Base Formula[1] (Modified)

Strained lamb, pork, or chicken	2 cans
Cottonseed oil	3 tblsp.
Table sugar	2 tblsp.
Tapioca starch	2 tblsp.
Calcium carbonate	1 tsp.
Salt	½ tsp.
Water	1 quart

All measurements are level. Heat water in top of double boiler until water in outer boiler begins to boil. Add salt, sugar, and calcium carbonate. Mix starch to paste in 1 cup of cold water and stir into mixture. Cook ten minutes, stirring constantly. Add meat and oil. Cook ten more minutes.

If tapioca starch or flour is not available, potato or arrowroot flour may be used. Ordinary tapioca also may be used, although it makes a rather thick mixture. Mothers may make their own meat using a blender. Any vegetable oil may be used, although olive oil seems least likely to cause allergic reactions.

The Rotated Diet

In severe eczema, it is wise to begin with the least allergenic foods, rotated so as to identify reactions to them. Any food which causes significant trouble (eczema, vomiting, colic, diarrhea, etc.) is dropped.

Diet 1 (2 days)	*Diet 2 (2 days)*	*Diet 3 (2 days)*
Lamb formula	Pork formula	Chicken formula
Carrot	Sweet Potato	White potato
Beet	Squash	Cauliflower
Asparagus	Peach	Pineapple juice

Weak tea, ginger ale, or water sweetener with sugar may be given at any time. After a trial removal of a week or so, synthetic vitamins may be given daily. If the child is on one of the meat formulas, he may take tapioca daily.

Management of Non-Allergic Factors

1. Seborrhea. Where the scalp is crusted, debris is removed by shampooing vigorously. A recently introduced product, Sopronol, is very effective for this purpose. Pragmater or other sulfursalicylic acid ointment is applied nightly, both to the scalp and to body areas that appear to be seborrheic. Although such ointments are not usually irritating it is well to tell the mother of that possibility.

2. Chapping. The ideal way to manage chapping would be to keep the child in a humid atmosphere, but this is hardly practical. Wet packs are also theoretically sound treatment, but anyone who has tried to keep a squirming, itching infant in wet packs knows of the difficulties. The child may be kept in either Burrow's solution (one Domeburo tablet to the quart) or saline (one level teaspoonful of salt to 24 ounces). In any case, the mother is urged to avoid soap and to treat the skin with gentle respect. Dry, rough areas may be oiled with vegetable oil or vegetable shortening such as Spry and Crisco.

3. Contact Dermatitis. It is best to assume that the patient is sensitive to all known contactants and primary irritants. The infant is dressed in white or pastel cotton from which soap or detergent have been thoroughly rinsed. He must not be dressed in wool, nor should he come into contact with woolen blankets, rugs, adult clothing, or furniture.

4. Infection. Perhaps the most important point in the management of infection is prevention. **Neither the child, nor his siblings, nor anybody around him, is to be vaccinated for smallpox!** Individuals with herpes simplex should stay entirely away from him. The presence of upper respiratory disease in the patient or in the family should be a signal for a careful search for signs of infection in eczematous areas.

Treatment of streptococcal and other bacterial infection is carried out along conventional lines. Unless there is previous history of reaction, antibiotics are indicated. Candida infection is treated with nystatin ointment or dusting powder.

5. Steroids. It might be said of adrenal steroids that they work too well! The first time they are used, whether orally or locally, the results are invariably good. Later use is often of no benefit, and repeated local use commonly inflames the skin. These agents most certainly have their place, however, and whenever specific treatment bogs down, the remission they often bring is most welcome.

Summary

Infantile eczema may be defined as an allergic dermatosis commonly complicated by seborrhea, contact dermatitis, chapping, and infection.

Success in treatment depends on recognition not only of the allergic components of the disease but complicating non-allergic factors as well.

1916 North Fortieth Street

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Coming Meetings

International Medical Assembly of Southwest Texas, 25th Annual Meeting, Granada Hotel, San Antonio, Jan. 23-25, 1961.

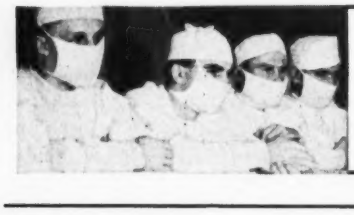
Arizona Heart Association, Fourth Annual Cardiac Symposium, Biltmore Hotel, Phoenix, Jan. 27-28, 1961.

American Society of Internal Medicine, Regional Meeting, Phoenix, Feb. 25, 1961.

Texas Orthopaedic Association, Galveston, Texas, April 24, 1961.

United States-Mexico Border Public Health Association, Annual Meeting, San Diego, June 25-29, 1961.

Southwest Obstetrical & Gynecological Society, Eleventh Annual Meeting, Konakai Club, San Diego, Oct. 15-17, 1961.



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Peritoneal Dialysis

R. C. Derbyshire, M.D., *Santa Fe*

Peritoneal dialysis was first found to be a feasible method for removing toxic substances from the blood of patients with renal failure in 1923 (1). Acceptance of the method in the United States has been slow because of the many complications which have been reported. The most important of these are peritonitis, overhydration, drainage difficulties, and electrolyte abnormalities. As recently as 1948 Frank, Seligman and Fine (2), reporting on a series of patients in whom they had employed a sump drain, stated, "The continuing hazard of peritonitis makes it necessary to regard the method as still in the experimental stages, and it should not be considered for routine clinical use."

After perfection of the artificial kidney, interest in peritoneal dialysis waned further and has only recently been revived mainly by the efforts of Maxwell and his associates (3) and Doolen and his group (4). Maxwell, impressed by the fact that treatment with an artificial kidney remains a formidable and costly procedure and that this technique should be limited to relatively few hospitals serving large population areas, devised an improved method of peritoneal dialysis which will be described. In cooperation with Don Baxter, Incorporated, he and his associates have devised a safe, efficient method and have eliminated the majority of the pitfalls inherent in other methods.

Simple Technique

The present technique of peritoneal dialysis is simple, can be initiated at the bedside, and, after the dialysis is well started, can be handled by any intelligent nurse after a few minutes of instruction. The only materials needed are the solutions and tubing, a scalpel, a trocar, a special catheter and sutures. The solutions, tubing and catheter can be obtained from Baxter and arrive sterile and ready for use. It is possible to prepare the solution in the hospital but this can be risky as well as cumbersome and time consuming. The appropriate equipment can be stocked by the hospital and is ready for use at all times.

The composition of the dialyzing solution is: sodium 140 M. eq per liter; chloride: 101 m. eq./L; calcium: 4.0 m. eq./L; magnesium: 1.5 m. eq./L; lactate: 45 m. eq. per liter and dextrose: 15 grams per liter. The total osmolarity is 372 milliosmols per liter. It is essentially a potassium-free extracellular solution with enough dextrose added to increase the osmolarity to 372 milliosmols per liter, somewhat higher than the levels found in uremic patients. This prevents absorption of the fluid from the peritoneum and over hydration. Potassium is intentionally omitted for use in uremia but may be added when used for barbiturate and other types of poisoning in which the serum potassium level is normal. To each two liters of solution are added 25 mgm. of tetracycline and 10 mgm. of aqueous heparin. The use of heparin is discontinued after three exchanges if the outflow fluid is not bloody.

Catheter Insertion

The technique of insertion of the catheter is simple and, although a Duke trocar is recommended, the ordinary small paracentesis trocar is adequate. The catheter is constructed of semirigid nylon 11 inches long, is slightly curved at the tip and has a rounded, unperforated end. The distal three inches are perforated with multiple small holes with smooth edges placed close together. This type of catheter along with the use of heparin does much to eliminate difficulties with outflow caused by plugging by fibrin or with omentum. Another type of catheter, devised by Doolen (4) and his group, seems promising and employs the same principle, the only difference being that the holes are recessed in small groves which should further help in preventing blockage.

Peritoneal Dialysis

I should like to present briefly the technique of peritoneal dialysis as employed in a recent case.

If you are interested in further details I refer you to the excellent article of Maxwell (3) upon which much of this presentation is based. The trocar is inserted in the lower midline of the abdomen under local anesthesia after meticulous preparation of the skin. The incision must be small and every effort must be made to obtain a snug fit around the catheter to prevent leakage. After the peritoneum has been entered the stylet is withdrawn and the trocar advanced it's full length. The catheter is then inserted and trocar withdrawn. The catheter is aimed dorsally and towards the right or left lumbar gutter. It can be manipulated by changing the direction of the trocar or by direct rotation from the outside. The catheter is connected to two liters of dialyzing fluid by means of a y-tube to which the heparin and tetracycline have been previously added. The fluid is then allowed to flow into the abdominal cavity by gravity which usually requires from five to ten minutes. When the bottles are empty but the tubing still full the tubing is clamped and the bottles placed on the floor beside the bed. The fluid is allowed to remain in the abdomen for one hour at the end of which the clamps are removed from the tubing and the fluid removed by siphonage. While drainage is taking place two more liters of solution are prepared and at the completion of drainage are connected to the catheter with fresh tubing. Usually between 30 and 50 liters of fluid are used over a period of from 24 to 36 hours depending upon the indications. A careful record of intake and output is kept.

Most Frequent Complications

The most frequently reported complication of peritoneal dialysis, peritonitis, has been largely eliminated by the method described. The essential points are assured sterility of solutions and tubing, the employment of an entirely closed system, the use of new sterile tubing with every addition of fluid, and the prophylactic use of tetracycline. Maxwell (3), reporting 76 cases in which peritoneal dialysis was employed, encountered no instance of peritonitis. Forty three (43) cultures of fluid at the end of dialysis were sterile and in sixteen cases which came to autopsy there was no evidence of peritonitis.

In the case under discussion, for the first few hours considerable difficulty was encountered with outflow, probably due to the fact that with the first introduction of the solution air was allowed to enter the system. This was most troublesome and it was finally necessary to modify the procedure to the extent that for several hours the filling and drainage of the abdominal cavity was made a continuous procedure. But the following day the system began to function much better and complete drainage could be effected in thirty minutes. We never attained the ideal of fifteen to twenty minutes for drainage as described by Maxwell (3).

Technique Refinements

If peritoneal dialysis is adopted for routine use, there are certain refinements in technique which I believe should be instituted. The patient should be weighed daily as a precaution against overhydration. Frenquent cultures should be taken from the recovered dialyzing fluid. Chemical analyses of the dialysate would also be of value. These measures were not used in this case for various reasons.

There are few absolute contraindications to peritoneal dialysis. The most important is preexisting peritonitis. A relative contraindication is recent extensive abdominal surgery although this is not regarded as seriously as in the past. Remote abdominal surgery is in itself no contraindication although the site of the scar might influence one in the placing of the catheter and extensive adhesions might preclude the use of the procedure.

Indications for Use

The indications for the use of peritoneal dialysis are essentially the same as those for the employment of the artificial kidney. These are not uniform but in general it can be said that clinical signs and symptoms of uremia should be regarded as more definite indications for dialysis than abnormal biochemical findings (5). Parsons and McCracken found a reliable correlation between daily increments in BUN and the necessity for dialysis. Using early mental symptoms as indications they noted that conservative therapy was adequate when the BUN rose by only 10 mgm. per 100 ml. daily but in patients with daily increments of 15 to 30 mgm. usually one or more dialyses were required. Of course another indica-

tion is threatened potassium poisoning not controllable by cation exchange resins.

Peritoneal dialysis has other applications than in renal failure. It is often effective in removing excess fluid in chronic nephritis with edema. In such cases the dialyzing fluid is modified by the addition of glucose to give a concentration of 7 per cent. It has also been found to be effective in the treatment of certain cases of poisoning such as those due to barbiturates, boric acid and salicylates.

Recently Segar (6) reported on the use of peritoneal dialysis in boric acid poisoning in three small infants. Exchange transfusions had been of no benefit in removing the poison but peritoneal dialysis removed large amounts as determined by measurements of the recovered fluid. The size of the patient is no contraindication to dialysis and furthermore the artificial kidney has not yet been adapted to use in such small patients.

Mortality Rates

The mortality rates of artificial kidney centers both in the United States and abroad are consistently at about fifty per cent. Although the number of cases in which peritoneal dialysis has been used is smaller, the mortality compares favorably with that following use of the artificial kidney in renal failure. The highest mortality has always occurred in post traumatic cases, the lowest in post partum patients with nephrotoxic renal failure.

It might be interesting to compare peritoneal dialysis with dialysis with the artificial kidney. Both methods have certain advantages and disadvantages. The main disadvantages of the artificial kidney are it's expense, not only initially but of upkeep and operation. Its use requires a team of experts including two physicians who must be in constant attendance for six hours or more. It requires at least five pints of blood for priming and more in reserve in case of emergency. On the other hand the artificial kidney is more efficient in that the average required time of dialysis is six hours as compared with from 12 to 36 hours in peritoneal dialysis, although the latter eventually accomplishes the purposes as well as the artificial kidney.

It is obvious that in certain cases with absolute contraindications peritoneal dialysis cannot be employed and in such the use of the artificial kidney is mandatory. The main advantages of peritoneal dialysis are it's relative simplicity and ease of operation and the fact that it can be started within thirty minutes of the time that it is decided that dialysis is indicated. It requires a minimum of personnel and after it has been begun it can be operated by any intelligent, well informed nurse. Furthermore, in a small hospital, and the majority of hospitals in this country are in this class, the need for dialysis of any type arises seldom and peritoneal dialysis offers a great advantage under these circumstances.

Conclusion

In conclusion, I am not presenting peritoneal dialysis as a method to be used to the exclusion of the artificial kidney. Each has a definite place and peritoneal dialysis has been presented as an alternative method of treatment which is frequently indicated in preference to the artificial kidney. The equipment for peritoneal dialysis can be stocked in any hospital and kept in readiness at all times.

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The Management of Urinary Tract Infections

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The more common non-specific infections attaching the kidney, perirenal tissues, ureters, bladder and urethra can usually be handled by the general practitioner. He is aware of the importance of general hygienic measures and of the fact that complete cure depends upon finding the cause of the disease. In addition, the value of chemotherapy with sulfas and antibiotics has been impressed upon him in recent years, and he has become familiar with the use of these drugs.

Less attention has been focused upon the fact that therapy with sulfas and broad-spectrum antibiotics may be associated with some serious side-effects. Individuals may be sensitive to these drugs, resistant strains of bacteria may develop during their use, and the drugs are expensive. This is not to imply that broad-spectrum antibiotics or sulfas should never be used in treating infections of the urinary tract. However, their use should be reserved for the more serious and complicated cases.

The drugs which should be used first in most patients with non-specific urinary infections are simple bacteriostatic agents and spasmolytic drugs. These agents are safe, have almost no toxicity, are inexpensive, and cause no systemic reactions. This study was under-taken to determine the clinical effectiveness of a single preparation which contains both bacteriostatic and anti-spasmodic drugs.* Its usefulness in geriatric cases has been previously reported[1], with good or excellent results in 72 per cent of cases. The study was conducted on sanitarium patients, all of whom had some form of chronic cardiac, vascular or neurologic disease. The present study was conducted on a younger group of patients who, as a whole, were in better physical condition.

*Urised, Chicago Pharmacal Company, Chicago, Illinois. Each tablet contains hyoscyamine, methenamine, atropine sulfate, methylene blue, benzoic acid, salol and gelsemium.

Methods and Materials

A total of 50 patients, 30 with acute conditions and 20 with chronic conditions, were treated. Their diseases were classified as follows:

Acute Conditions

Cystitis	12
Infections due to chronic renal insufficiency	7
Infections due to lithiasis	5
Infections associated with diabetes mellitus	3
Infections associated with hypertension	3
Total	30

Chronic Conditions

Cystitis	6
Pyelonephritis	4
Infection due to indwelling catheter and paralytic bladder	4
Infection associated with chronic prostatism	4
Infection due to stricture of urethra	2
Total	20

These diseases have in common the fact that bacteria reach the kidney by way of the blood stream, the ureter or periureteral lymphatics, or from the intestines by way of lymphatics. Hematogenous infections are the most frequent. Since the kidney does not filter bacteria, infection of clinical importance may occur when bacteria come in overwhelming numbers or when there is lowered resistance of the urinary passages. Almost any organism may cause an infection, but it is often found that Escherichia coli is responsible. Staphylococci and streptococci also occur with some frequency.

Symptoms which frequently accompany acute bacterial infections include sudden onset of chill, fever or pain in the loin. The patient may also note burning, urgency, frequency. The urine may contain bacteria, albumin and varying amounts of pus. Reaction of the urine is neutral or acid when Escherichia coli is present, and alkaline with Proteus vulgaris. Red cells are frequently found in the sediment, but gross hematuria is rare. Chronic disease is more difficult to diagnose in that the clinical picture is variable, and frequently symptoms are so mild as to escape recognition until the disease has been present for some time.

Treatment

Treatment in this series of patients consisted of administering a drug which contains a bacteriostatic agent and an antispasmodic drug. Studies of sensitivity of organisms were not done routinely, since they are time-consuming and expensive and in many instances contribute no additional help. The usual dose of the drug was 2 tablets 4 times each day with a-glassful of water. The initial dose in acute cases was 2 tablets, followed by a second dose one hour later and a third dose at the end of two hours. Patients were treated for from 10 days to 2 months. When indicated, patients were also instructed to eat a soft diet, get plenty of bed rest, and to drink liberal amounts of fluid.

It should be emphasized that careful evaluation of the history in an individual case and examination of a properly collected specimen of urine are absolutely essential. If there is suggestion of a coexisting pathologic condition, the patient should have a detailed urologic study immediately. Previous studies have shown that results of therapy for infections of the urinary tract are more dependent on the presence or absence of a complicating lesion than on the medication being given.[2] A drug such as the one under investigation will not give relief from symptoms of obstruction such as those accompanying tumors or stones, for instance.

Results

The effects of the drug combination in 50 patients with acute or chronic infections of the urinary tract are summarized in Table 1.

Table 1

Summary of Results with Urised Therapy

Diagnosis	Total No. of Patients	Results Good	Fair	Poor
Acute Infections:				
Cystitis	12	8	4	—
Infections due to chronic renal insufficiency	7	5	2	—
Infections due to lithiasis	5	2	2	1
Infections associated with diabetes mellitus	3	1	2	—
Infections associated with hypertension	3	1	2	
Total	30	17 (57%)	12 (40%)	1 (3%)
Chronic Infections:				
Cystitis	6	1	4	1
Chronic pyelonephritis	4	1	2	1
Infection due to indwelling catheter & paralytic bladder	4	1	2	1
Infection associated with chronic prostatism	4		3	1
Infection due to stricture of urethra	2		1	1
Total	20	3 (15%)	12 (60%)	5 (25%)
Grand Total	50	20 (40%)	24 (48%)	6 (12%)

In this study, approximately 88 per cent of patients treated for non-specific urinary infections were benefited by Urised, as opposed to 72 per cent of geriatric patients in an earlier study. As shown in Table 1, a higher percentage of patients with acute infections benefited from the medication than those with chronic infections. Their symptoms were generally relieved in a few hours.

No side effects were apparent in this series of patients. None developed sensitization to the drug, and it was possible to maintain the same dosage schedule throughout the course of therapy.

Summary and Conclusions

Fifty patients with acute or chronic infections of the urinary tract were treated with a drug having bacteriostatic and antispasmodic properties. Of the 30 patients having acute infections, 97 per cent had fair to good results. Of the 20 patients with chronic infections, 75 per cent had fair to good results. The usual dosage was two tablets four times daily.

Except in severe infections of the urinary tract, agents such as those contained in Urised should be tried first. This drug is safe, has almost no toxicity, is inexpensive, and causes no systemic reactions. However, if an infection has proved resistant to therapy, studies of sensitivity in conjunction with complete urologic study, including urography and cystoscopy, may prove of great value.

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CPC

Clinical Pathological Conference

R. E. Thomason General Hospital, El Paso

F. P. Bornstein, M.D., *Editor*
Presentation of case by Dr. William Wade

Case No. 1459, October 28, 1960

History: Dr. Nathan Kleban:

A 51-year-old Latin-American housewife entered the hospital on June 2, 1960.

The patient had given birth to nine children with seven surviving. Menstruation stopped at age 42. During the past year she lost 30 lbs., despite a good appetite. Urinary symptoms were denied.

One day before admission the patient was struck with severe abdominal pain, most intense in the upper mid-abdomen. The pain was not affected by two bowel movements. On the day of admission she vomited three or four times. A physician gave her narcotic for pain and referred her to the hospital.

Physical Examination:

The patient was restless with pain, pale, emaciated, and appeared slightly jaundiced. T. 99. P. 110. R. 22. B. P. 150/100. Abdominal tenderness was generalized but greatest in the epigastrium. The abdominal wall was rigid. No bowel sounds were heard. Lungs were clear. There was no cardiac murmur.

Hospital Course:

Yellow fluid was obtained when a gastric tube was inserted. Continuous suction was maintained. Parenteral chloramphenicol was given on the first day, tetracycline on the second, and tetracycline, penicillin, and streptomycin on the third. Meperedine (Demoral) was injected for pain. Propanthe-

line bromide (Probanthine) was prescribed. Temperature rose to 103.6 on the second day. Acetylsalicylic acid rectal suppositories were used for fever.

Urinary output was 1400 cc. on the second day. Two liters of glucose water and one of electrolyte solution were given intravenously on the first day. On the second day no glucose water and 3.5 liters of electrolyte were administered. A retention catheter was placed in the urinary bladder. The patient vomited 500 cc. of dark green material. She was noted to be confused.

On the third hospital day the patient received no glucose/water, three liters of electrolyte solution, making a total intake of two liters of glucose/water and 7.5 liters of electrolyte solutions, which consisted of Ringer's lactate or M/6 lactate. The patient had a liquid stool in bed. Temperature rose to 106 (R), then 108 (the maximum registered on the thermometer). Five hours after cold water sponging and ice water enemas were started the temperature was 107.6 (R). Oxygen was prescribed for labored breathing. Systolic blood pressure dropped to 60. The patient said she felt better, but three hours later she was pronounced dead.

Laboratory Findings:

X-rays: 6-2-60—Abdomen, flat and upright, chest, A-p supine: "Survey films of the abdomen in the erect and recumbent posture reveal no evidence of free air under either hemi-diaphragm. Four large mixed-type of gall bladder calculi are visualized in the right upper quadrant. The kidneys are normal in size, shape and position. The psoas shadows and properitoneal fat lines are present bilaterally. The lumbar spine and pelvis reveal minimal degenerative changes. Conclusion: Abdomen negative for evidence of ruptured hollow viscus."

Sagittal view of the chest reveals the lungs to be well ventilated. There is no evidence of active pulmonary infection. The heart and mediastinal structures appear natural. The bony thorax and diaphragm appear intact. The trachea occupies its usual position. There is a stable calcification in the fifth interspace anteriorly on the right. Conclusion: Chest negative for evidence of active pulmonary infection or congestive failure.

6-4-60 — P-A portable chest: Re-examination of the chest and comparison with previous study now reveals two patchy confluencies, one at the left base and one in the mid-lung field, consistent with pulmonary infarction with accompanying pneumonitis. The remainder of the chest reveals no significant change from the previous examination. The bony thorax and diaphragm appear intact, except for some obscuration of the left costophrenic sulcus probably secondary to a small effusion or thickened pleura. Conclusion: Findings consistent with bilateral pulmonary infarction.

Blood counts: 6-2-60—Hb. 14.2 gms., Ht. 44%, WBC 22.600, Stabs. 28, Segs. 73, Lymphs. 9. **6-3-60**—Hb. 15.6 gms., Ht. 51%, WBC 14,500, Juveniles 1, Stabs. 24, Segs. 58, Lymphs. 16, Monos. 1. **6-4-60**—Hb. 13.3 gms., Ht. 45%, RBC 4,320,000, WBC 8,400, Stabs. 12, Segs. 62, Lymphs. 22, Monos. 4.

Urinalysis: 6-2-60—(Catheterized) Deep yellow, hazy, acid, S.G. 1.016, Albumin trace, Sugar negative, WBC 50-60, few clumps, Ep. cells few round, casts few hyaline, moderate no. bacilli, few calcium oxylate crystals.

Chemistry: 6-2-60—Amylase—711; Van den Bergh Direct—.808, Indirect—1.3; Calcium—10.1; CO_2 capacity—21 Mm/L; Chlorides (as NaCl)—110; Potassium — 4.3 mEq/L; Sodium — 147 mEq/L. **6-3-60**—Amylase—674; Calcium—3.9 mEq/L; CO_2 capacity—15 Mm/L; Chlorides (as NaCl)—112 mEq/L; Phosphatase, Alk.—4.7; Potassium—4.7 mEq/L; Sodium—140 mEq/L; Total Protein—6.3 gm.%; Albumin—4.2; Globulin—2.2; A/G—1.9. **6-4-60**—Amylase—358; CO_2 capacity —15 Mm/L; Urea Nitrogen—16.

Clinical Discussion: Dr. William Wade

I am glad to see such a small crowd here to enjoy my discomforture. One of my problems in going over this CPC during this election campaign, that epithet "tricky" has been popularized quite a bit and I am not sure just how tricky Dr. Bornstein is, so I don't know just what to do with it. I think I would like to start off by reading the protocol, if you are like I am, you probably haven't had a chance to read it previously.

Concerning the history, I would be interested to know if she could have been an alcoholic, or

had ingested much alcohol prior to this episode, or did the pain come on after a large meal?

Her hospital course was as follows: A Lavine tube was inserted and yellow fluid was obtained from the stomach. Continuous gastric suction was maintained. She was given chloromycetin on the first day, tetracycline was added on the third, and penicillin and streptomycin were added I presume on the third. Demerol was given for her pain. She was given Probanthine. Her temperature rose to 103.6 on the second day, aspirin suppositories were given, it doesn't say so, but I am sure she received nothing by mouth during this three days. Her urinary output was 1400 cc. The patient vomited 500 cc. of dark green material, I wonder if this was while the tube was in place?

Answer:

Yes.

Dr. Wade:

If so, it probably indicates that the gastric tube had become blocked. I think it is a very important detail to stress that the Lavine tube should be irrigated to insure its patency. A patient should not vomit with a Lavine tube in place.

Several things need mentioning in this history and physical, such as the confusion that may be related to the fluid and electrolyte management. I thought I might say a little bit about the fluid and electrolyte balance but actually we are given so few data that I can't make any worthwhile observation. For instance, we don't know what her urinary output was during this time, it is told on one occasion she had 1400 cc. of urinary output on the second day. However, it strikes me as a little peculiar that she got so much electrolytes and so little glucose and water, even assuming that she was losing large quantities of electrolytes. With considerable ileus there may have been considerable fluid in the intestine. It is quite proper to replace that with electrolytes.

On the second day of June a suppine and upright abdomen and A-p chest were taken, no free air was noted, several gall bladder calculi were visualized, what appeared to be normal psoas shadows and properitoneal fat lines were seen, and the conclusion was that the abdomen was negative for evidence of ruptured hollow viscus. Sagittal view of the chest revealed the lungs to be well ventilated, no evidence of acute process going on in the lungs or mediastinum at all. On the fourth of June a portable P-a chest was taken.

X-Ray Discussion: Dr. Vincent Ravel:

Here are the biliary calculi, there is no air visualized under the diaphragm. The final film shows areas of confluency which were consistent with infarction. There is gas in the stomach, there is not a great amount of ileus here, I cannot identify small bowel gas.

Dr. Wade:

Well, in summary, we have an emaciated 51-year-old female who is known to have lost 30 pounds weight the previous year. She is admitted with symptoms of an abdominal catastrophe of some sort. She is not in shock. Her laboratory work and examination show her to be slightly jaundiced with an elevated serum amylase and marked leucocytosis. On the second day she shows a falling serum calcium and acidosis. She became confused, hyperpyrexic and she died on the third day.

What I would like to do is mention a number of conditions I think should be considered in the differential diagnosis. I will tell you which of these conditions I think most likely to have been present and then make my own diagnosis. Some of these are very unlikely, I just bring them up because they manifest themselves as abdominal catastrophes and should be at least thought of in passing.

Of course first on the list is perforated ulcer. In perforated ulcer 90% of the cases occur in males and in 80 or 87% of the cases free air can be seen under the diaphragm. She did not have this air under the diaphragm. I might mention at this point that you don't always see free air under the diaphragm in the first film specially if it is taken early after the onset of the perforation. It is wise to repeat the X-ray later. Of course here we have a chest film done a couple of days later and there is still no free air visible, so I would rule out perforated ulcer.

Ruptured abdominal abscess: In my experience this is a very unusual situation and usually is a complication of a tubo-ovarian abscess which was localized and then ruptured free into the peritoneal cavity. Of course this leads to signs of a

serious surgical abdomen. A pelvic examination would have been helpful, we are not told what it was in this lady; however, her age I think probably speaks against this diagnosis.

Mesenteric thrombosis: Arterial mesenteric thrombosis which is usually fatal occurs often after embolus either from rheumatic fever, auricular fibrillation, or after a myocardial infarction, or it may occur as primary mesenteric thrombosis associated with severe generalized arteriosclerosis. The picture is really different from the one she presented. There is usually more ileus, sometimes blood from the rectum and really less of an abdominal rigidity and guarding. I would exclude this diagnosis.

Dissecting aneurysm: Well, traditionally we look for unequal pulses in the groin, if it's an abdominal dissection, shock is usually present, and the X-ray may show marked widening of the aorta in the abdominal region.

A ruptured arteriosclerotic aneurysm of the aorta presents itself as a catastrophe. Of course you should be able to feel the aortic aneurysm in this instance.

Ruptured esophagus: This goes unrecognized in many cases. The terminal esophagus low in the mediastinum or even in the upper abdomen can rupture and lead to either severe chest signs mimicking myocardial infarct, or severe upper abdominal signs. I have seen one patient that was explored for acute surgical abdomen and nothing was found and the patient went on to die, and at autopsy he had a ruptured esophagus. However, typically in this instance you expect to get mediastinal emphysema that you can see on the chest X-ray and eventually crepitus in the supraclavicular fossae, but it is a diagnosis to keep in mind.

Rare and Interesting

Now there are a few rare things that I think are interesting but not very practical: malaria—malaria will present sometimes a severe abdominal pain, and some of these people get operated on. It occurs as a rule during a hemolytic crisis. You would expect to see parasites in the blood smear, the patient should be having chills, and markedly elevated temperatures. This lady did. The following I consider unlikely: sickle cell crisis. Well, you all know that this can give abdominal pain, it is usually recurrent. Porphyria. You should get change of color of the urine on standing. Lead poisoning—history, basophilic stippling of blood cells, lead-lined gums. Herpes zoster can mimic an acute abdomen, although the distribution is not generalized as it was in her case and of course it is never fatal. Hemorrhage into the rectus abdominus muscle—this can lead people to be operated on in error but certainly wouldn't produce the severe picture she had. Pulmonary disease can produce signs of acute abdomen—pneumothorax, pneumonia, she certainly doesn't have these. Myocardial infarcts—we are all aware of this. One diagnosis that I have never seen myself but I try to keep in mind is arachnidism, bite from a black widow spider. This will produce apparently a severe abdominal pain but also tends to produce generalized muscular aches and pains. It ordinarily is not fatal, except in children or infants, it is not associated with a leucocytosis and fever, it may be associated with bradycardia, which she did not have.

Three Diagnoses

Well, now we get down to three diagnoses that I think are worthy of serious consideration. What about a ruptured gall bladder. This patient is a female, about the right age group, we know she has gall stones, and she has a little jaundice. Ruptured gall bladder usually occurs after an episode of acute cholecystitis. To develop the present clinical picture the rupture would have to have been a free intraperitoneal rupture which in my experience is very unusual. Usually a gall bladder is pretty well walled off. However, it may occur and we cannot exclude this diagnosis except for the serum amylase which is elevated and inclines us more toward the diagnosis of acute pancreatitis.

Another diagnosis which is very rare but otherwise would probably fit is acute phlegmonous gastritis. I have never seen a case but a few have been reported in the literature, it is a phlegmonous infection involving the wall of the stomach frequently due to clostridial organisms. The patient then could present just such a picture like this. The diagnosis is really made only at the time of surgery. Apparently some of these people do recover with antibiotics. I don't know how you can

definitely exclude this diagnosis except that the amylase makes us inclined toward pancreatitis and the phlegmonous gastritis is so unusual.

Acute Pancreatitis

Well, finally my diagnosis on this patient is acute pancreatitis. I think most things fit here. There are two forms of pancreatitis, acute and chronic. In the acute form we have the mild edematous pancreatitis, and the severe hemorrhagic necrotizing pancreatitis. Some authorities say hemorrhagic pancreatitis occurs in females much more commonly, in my experience I must admit it is more common in males. There are several pre-disposing factors, obesity, alcoholism, many patients give a history of ingesting a large meal just before the onset, 85 per cent of these cases have cholelithiasis.

I think she had the typical picture of hemorrhagic pancreatitis, the edematous form which is not always fatal, and shock may be a prominent part of the picture, and it concerns me a little that she was not in shock on admission. Many of these patients will have mild icterus, maybe due to hemolysis of the large amount of extravasated retroperitoneal blood or due to a little obstruction of the common duct. Many of these patients complain of severe back pain but this is not necessarily so. Mental confusion has been a prominent part of the picture. In the cases that I have seen a real fulminating psychosis is not very uncommon. The serum amylase is characteristically elevated. I just might mention in passing that I don't feel that the serum amylase determination is an infallible test. It can be elevated in a number of other conditions such as obstruction, perforated ulcer, even after non-specific trauma. Ordinarily it does not rise to these high levels, so I think this is important confirmatory evidence that she has pancreatitis. Very often in acute pancreatitis the serum calcium will fall and interestingly enough it did just so in this patient, it falls 36 to 48 hours after the episode. Traditionally we are taught that this occurs because there is an extravasation of lipase from the crowded pancreas, this breaks down the fat into glycerin and fatty acids and the fatty acids bind calcium to make soap. Actually there has been some work done to indicate that the explanation is not quite as simple and that the saponification is due to an enzyme in the blood stream which alters the form of the fats and bind the calcium actually within the circulating fluid of the body.

Leucocytosis

Leucocytosis is to be expected at the level that this patient exhibited. Albuminuria is a very common finding in pancreatitis. You can also find glycosuria. I have not talked very much about the white cells in this patient's urine, and I might be missing a very important clue, but I am just kind of passing that off as coincidental evidence of lower urinary tract infection, I don't think it has anything to do with her death.

Now, what other diagnostic measures could have been carried out in this patient? Aspiration of the peritoneal cavity is sometimes helpful, I am not a great advocate of this, but when you suspect a pancreatitis and are concerned that you might have a surgical abdomen, it might be very helpful to pass a needle or little catheter into one of the lower abdominal quadrants to aspirate fluid and get an amylase determination on it; this may help you out of a difficult situation.

What about therapy for pancreatitis? She was treated according to all the accepted methods, nothing by mouth, gastric suction, elimination of vagus action and antibiotics. Blood is used if there is evidence of falling hemoglobin, and fluid replacement as indicated.

Surgery Contra-indicated

Surgery ordinarily is contra-indicated if you are sure of the diagnosis, of pancreatitis. Some people advocate operation to make sure there is not a common duct stone. Most authorities feel that this is meddlesome if you are sure of the diagnosis.

Two other therapeutic measures might be mentioned: (1) there is the use of cortisone, there are reports of several patients who were dying of acute hemorrhagic pancreatitis and who made a dramatic recovery with the use of cortisone. Why this should be is not clear. (2) There is also the use of paravertebral blocks at about T-12 to relieve pain. This can be dramatically successful in some cases. I don't know if it would have helped here.

My diagnosis is acute hemorrhagic pancreatitis with death. I would also not be too surprised if she turned out to have a ruptured gall bladder with generalized peritonitis on that basis.

Dr. Francisco Licon:

I would like to inquire whether there is any relation between pancreatitis and frequent pregnancies.

Dr. Ben Taber:

Well, I am afraid I can't be of much help because I have never seen too much pancreatitis during pregnancy and I have never been too much impressed that pancreatitis was that much more common in the pregnant population than in the non-pregnant population. It is interesting, as I saw this protocol and then looked up the date, it turns out that I was the physician that gave the narcotic for pain to this patient. She was a maid of one of my patients and she was brought in to me to see what was wrong. I said I don't know, you better take her down to the county hospital, but she was in such excruciating pain she came in doubled over. My impression was the pain was more upper than lower quadrant pain and that it was a chronic type of illness with acute exacerbation.

Dr. William Gaddis:

It is interesting that this patient lost 30 pounds of weight and yet had a good appetite. This is unusual to see in patients who have malignant disease but is not uncommon in chronic or inflammatory disease of the intestinal tract or of the associated structures. It makes one wonder whether this patient had had a chronic disease in the upper GI tract for some time that did not interfere with her appetite but certainly interfered with her absorption and so brought about a malnutrition problem.

Dr. Kleban:

I wonder if the members of the house staff who had this patient would care to justify their water and electrolyte treatments. Her insensible loss is about 1000 cc, we have one urine output recorded of 1400 cc. which would make 2400 cc. plus the extra amount of water that she lost in sweat due to the fever, and I think she had a requirement of at least 3000 to 4000 cc. Now ordinarily when you over load an individual with electrolyte solution they will either go into pulmonary vascular congestion or pulmonary edema or they will develop edema, depending on which side of the heart fails first, which side of the heart is primarily overloaded. Now whether or not this woman's heat stroke, which actually is what she had, on the day of death, whether that was due to the pathological process or whether that was due to an intracellular water deficit, either relative or absolute, I think is a little difficult to say.

Clinical Diagnosis: Acute abdomen

Dr. Wade's Diagnosis: Acute pancreatitis

Pathological Discussion: Dr. F. P. Bornstein:

On autopsy we found a middle aged, fairly well developed, well nourished woman who had an obvious peritonitis. Large amounts of fresh fibrin were seen covering the intestinal loops. There was about 500 cc. of cloudy exudate in the peritoneal cavity. We then started to search for the more obvious causes of peritonitis. The appendix was intact, the gall bladder was intact, but contained a number of stones, the stomach was intact, the internal genitals were intact. Upon entering the retro-peritoneal space, we found numerous pus pockets on the superior margin of the pancreas and small pus pockets in the minor omental bursa. The pancreas was markedly indurated. It did not show any evidence of primary hemorrhage or fat necrosis but was lying in indurated fat tissue which contained numberous abscesses. I think this was enough irritation to the pancreas to explain the elevated amylase. The tail of the pancreas posteriorly was lying in a large abscess cavity. The source of the abscess was found in the left kidney which on the anterior surface had a large so-called carbuncle originating in a primary peri-renal abscess. This represented the primary inflammatory source which had produced a phlegmonous inflammation in the retro-peritoneal space with penetration and secondary acute peritonitis.

Pathological Diagnoses: 1. Peri-renal abscess, left. **2.** Metastatic abscess in retro-peritoneal space, minor omental bursa and pancreas. **3.** Acute metastatic peritonitis.

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